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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/072,800 | 01/31/2002 | John T. McDevitt | 5119-00543 | 6961 |

7590 06/28/2005
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EXAMINER

LAM, ANN Y

ART UNIT PAPER NUMBER

1641

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/072,800 | Applicant(s) MCDEVITT ET AL. | |
| | Examiner Ann Y. Lam | Art Unit 1641 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 342-492 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 342-492 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8/04, 4/04, 2/04, 9/03, 8/22/03, 8/29/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of group XIII in the reply filed on May 2, 2005 is acknowledged.

Claim Objections

Claim 487 is objected to because of the following informalities: "sensory" should be – sensor--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 342, 462-466, 468-470, 476-479, 482-485, 489-492 are rejected under 35 U.S.C. 102(b) as being anticipated by Brennan, 5,472,672

As to claim 342, Brennan discloses a sensor array comprising:

a substrate (47 and 32), wherein the substrate comprises at least one cavity (26);
a particle (i.e., CPG beads, col. 12, lines 26-28, and col. 15, lines 43-45)
positioned within the cavity, wherein the particle is configured to produce a signal upon
interaction with the analyte (the Office notes that Applicant has not indicated what kind
of signal; also the CPG bead is capable of producing a signal, depending what kind of
sensor is used); and

a flexible projection (84) positioned over a portion of the cavity, wherein the
flexible projection is configured to substantially inhibit displacement of the particle during use
(see fig. 5.)

As to claim 462, the cavity (26) is configured to substantially contain the particle.

As to claim 463, the sensor array further comprises a cover layer (37) coupled to the
substrate and a bottom layer (81) coupled to the substrate, wherein the cover layer and the
bottom layer are removable (see fig. 5 and 6.)

As to claim 464, an opening (77) is formed in the bottom of the cavity, wherein the
opening is configured such that the fluid flows through the cavity and out of the cavity through
the opening during use.

As to claim 465, a cover layer (37) is coupled to the substrate and a bottom layer (81) is
coupled to the substrate, wherein the bottom layer is coupled to a bottom surface (e.g., bottom of
26 and/or 32) of the substrate and the cover layer is removable, and the cover layer and the
bottom layer include openings that are substantially aligned with the cavities during use (see fig.
6).

As to claim 466, a cover layer (37) is coupled to the substrate and a bottom layer (81) is coupled to the substrate, wherein an opening is formed in the cover layer substantially aligned with the cavity, and an opening is formed in the bottom layer substantially aligned with the cavity (see fig. 6).

As to claim 468, a width of a bottom portion of the cavity (26) is substantially less than a width of a top portion of the cavity, and the width of the bottom portion of the cavity is substantially less than a width of the particle (see fig. 6).

As to claim 469, a cover layer (37) is coupled to the substrate and a bottom layer (81) is coupled to the substrate, wherein the bottom layer is configured to support the particle, and wherein an opening is formed in the cover layer substantially aligned with the cavity (see fig. 6).

As to claim 470, a removable cover layer (37) is coupled to the substrate.

As to claim 476, the sensor further comprises channels (44 and 74) in the substrate, wherein the channels are configured to allow the fluid to flow through the channels into and away from the cavity (fig. 6).

As to claim 477, a plurality of additional particles (col. 16, lines 43-45) are positioned within a plurality of additional cavities in the substrate (fig. 6).

As to claim 478, a plurality of additional flexible projections (84) are positioned over a plurality of additional cavities in the substrate (fig. 6).

As to claim 479, the sensor array further comprises a cover layer (75) coupled to the substrate, wherein the flexible projection (84) is formed in the cover layer.

As to claim 482, the flexible projection (84) is configured to retain the particle in the cavity.

As to claim 483, the sensor array further comprises a top opening and a bottom opening of the cavity (26, see fig. 6) and provides selection of the particle substantially contained in the cavity.

As to claim 484, a size of the particle (75, i.e. CPG, col. 12, lines 26-28) is smaller than a top opening of the cavity and larger than a bottom opening of the cavity such that the particle will be substantially contained in the cavity (see col. 10, lines 57-59, and see fig. 6).

As to claim 485, the particle (CPG, col. 12, lines 26-28) is capable of being positioned within the cavity by using airflow to pull the particle through the flexible projection.

As to claim 489, the flexible projection (84) is configured to elastically bend into the cavity in the substrate. (Because element 84 is made of polyethylene, it is considered to be capable of elastically bending into the cavity.)

As to claim 490, the sensor array further comprises a mask (i.e., bottom of 26), the mask configured to inhibit the flexible projection bending from an initial position to a position away from the cavity.

As to claim 492, the flexible projection (84) is configured to elastically bend into the cavity in the substrate, and the flexible projection is configured to be inhibited from bending away from the cavity. (Because element 84 is made of polyethylene, it is considered to be capable of elastically bending into the cavity, and it is capable of being inhibited from bending away from the cavity.)

As to claim 491, the flexible projection is (55) and the substrate is (47, 32 and 44) wherein the cavity includes (44). The flexible projection (44) is electrically actuated to allow insertion of the particle into the cavity (col. 7, lines 61-65.)

2. Claims 342 and 461 are rejected under 35 U.S.C. 102(e) as being anticipated by Pfost et al., 6,485,690.

As to claim 342, Pfost et al. discloses a sensor array comprising:

a substrate (10'), wherein the substrate comprises at least one cavity (30');

a particle (31) positioned within the cavity, wherein the particle is configured to produce a signal upon interaction with the analyte (the Office notes that Applicant has not indicated what kind of signal); and

a flexible projection (29) positioned over a portion of the cavity, wherein the flexible projection is configured to substantially inhibit displacement of the particle during use (col. 7, lines 50, 57-58 and 61-62).

As to claim 461, the particle has a size ranging from about 0.05 microns to about 500 microns in diameter (col. 7, lines 42-44, and 57-58.)

3. Claims 342, 467, 471-475, 480, 481 and 486 are rejected under 35 U.S.C. 102(e) as being anticipated by Petersen et al., 6,682,649.

As to claim 342, Petersen et al. discloses a sensor array comprising:

a substrate (12 and 26), wherein the substrate comprises at least one cavity (see fig. 4);

a particle (2) positioned within the cavity, wherein the particle is configured to produce a signal upon interaction with the analyte (the Office notes that Applicant has not indicated what kind of signal); and

a flexible projection (22) positioned over a portion of the cavity, wherein the flexible projection is configured to substantially inhibit displacement of the particle during use.

As to claim 467, the cavity is tapered such that the width of the cavity narrows in a direction from a top surface of the substrate toward a bottom surface of the substrate, and a minimum width of the cavity is substantially less than a width of the particle (see fig. 3B).

As to claim 471, the substrate comprises a plastic material (col. 7, line 42).

As to claim 472, the substrate comprises a silicon wafer (col. 8, line 18, or col. 7, line 37).

As to claim 473, the substrate comprises a dry film photoresist material (col. 8, line 29-30).

As to claim 474, the substrate comprises a plurality of layers of a dry film photoresist material (col. 8, lines 18-19).

As to claim 475, an inner surface of the cavity is coated with a reflective material (col. 8, line 32).

As to claim 480, the flexible projection comprises silicon nitride (col. 8, line 19).

As to claim 481, the flexible projection comprises plastic (col. 7, line 42).

As to claim 486, the flexible projection comprises silicon dioxide (col. 8, line 18).

4. Claims 342, 460, 487 and 488 are rejected under 35 U.S.C. 102(b) as being anticipated by Lavigne et al., "Solution-Based Analysis of Multiple Analytes by a Sensor Array: Toward the Development of an "Electronic Tongue"", J. American Chemical Society, Vol. 120, pp. 6429-6430.

As to claim 342, Lavigne et al. teaches a sensor array comprising:

a substrate (chip (page 6429, line 4), wherein the substrate comprises at least one cavity (wells, page 6429, line 3);

a particle (bead, page 6429, line 3) positioned within the cavity, wherein the particle is configured to produce a signal upon interaction with the analyte (the Office notes that Applicant has not indicated what kind of signal); and

a flexible projection (Si/SiN wafers) positioned over a portion of the cavity, wherein the flexible projection is configured to substantially inhibit displacement of the particle during use (page 6429, lines 3-4).

As to claim 460, the particle comprises a receptor molecule coupled to a polymeric resin (page 6429, third paragraph).

As to claim 487, the sensor array further comprises a light source (page 6430, see description of Figure 1), wherein the flexible projection is transparent to the light generated by the light source.

As to claim 488, the sensor array further comprises a cover layer (cover plate, page 6430, see description of Figure 1) coupled to the substrate and a bottom layer coupled to the substrate (i.e., bottom layer of wafer, page 6429, line 3), wherein the cover layer and the bottom layer are transparent to light generated by a light source (page 6430, see description of Figure 1, and page 6429, line 3).

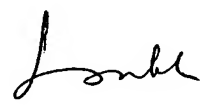
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ann Y. Lam whose telephone number is 571-272-0822. The examiner can normally be reached on M-Sat 11-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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08/24/05